PREJUDICE vs. PREFERENCE: WHAT DO WE REALLY KNOW ABOUT HOUSING MARKET
DISCRIMINATION?[*]

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Introduction and Background of Problem

A persistent feature of urban regions in the United States has been the
marked degree of racial segregation in residential areas which effectively
encloses nonwhite households in central city ghettos. It is widely believed
that only a fraction of this segregation can be attributed to either racial
economic differentials or to "voluntary" actions, although the evidence on
the latter point is far from conclusive [8, 9, 18]. Numerous recent
statistical studies have, indeed, concluded that the prime deterrent to
nonwhite dispersal is housing market discrimination which effectively raises
housing prices nonwhites must face [10, 11, 16, 17].

As noted below, a few authors have tried to provide alternative explanations
for the observed interracial housing price differentials which revolve around
either "disequilibrium" or "higher cost of operation" arguments. This paper,
on the other hand, will provide a new skeptical counterpoint to the claim
of discrimination by attempting to demonstrate that the existing econometric
specifications cannot conclusively identify housing discrimination without
recourse to arbitrary and often implausible assumptions concerning house-
holds' preferences for neighborhood racial composition and other components
of the housing package. While it is not claimed that existing studies yield
no inferences about discrimination, the potentially-biasing flaws of the
specifications cannot be overlooked in any comprehensive consideration of
the topic.

To gain a better perspective for an analysis of methodological problems
in the determination of discrimination markups a brief background of alter-
native explanations of the phenomenon is in order. The initial theme which
can be distilled from the literature focuses on "disequilibrium" interracial
price differentials [3, 7, 14]. The argument here is that the combination
of vast nonwhite population migrations into Northern central cities coupled
with intrinsically low supply elasticities associated with lower-quality,

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rental submarkets in the urban core create a short-run phenomenon of nonwhite rents being bid up above those existing in comparable white submarkets. The recent in-migrants' unfamiliarity with the local housing market exacerbates this effect. Given a stabilization of nonwhite population growth these differentials should disappear as supply adjusts to the long-run equilibrium.

The second alternative explanation revolves around "higher costs of operation" of nonwhite units than comparable white-occupied ones [14]. Land-lords may charge higher rents to occupants of any race having large families and/or low socioeconomic status in the belief that these factors are commonly associated with higher maintenance, repair, rent collection, etc., costs. Since nonwhites disproportionately frequent such demographic categories one would expect an interracial rent differential independent of any racial discrimination.

These existing alternative explanations for interracial housing price differentials, while plausible, have been blunted by the research of King and Mieszkowski [11]. Their specification controlled for recent in-migrant status, family size, and socioeconomic status, yet the empirical results still demonstrated nonwhite markups existing for rental units in racially-mixed areas.

There exists, however, a further factor which none of the existing studies have effectively isolated. Specifically, it is the contention of this paper that econometric specifications used in the study of housing discrimination are inadequate and their use requires arbitrary and often implausible assumptions concerning households' preferences for neighborhood racial composition, the unique socio-psychological atmosphere generated by the ghetto, and the nonracial components of the housing package. In the absence of such assumptions little credence can be placed in results generated with the current state of the art. To a presentation of this argument we now turn.

Analysis of Existing Discrimination Methodologies

The past several years have witnessed numerous attempts to identify and quantify racial discrimination in housing markets through the application of econometric techniques. Yet, all these studies have been based on the common principle that "housing" can be comprehended as a bundle of various housing-related attributes, each of which may be thought of as a separate good having an implicit price perceived by households in the marketplace. Empirically, this principle asserts some relationship between the price of a housing package and the components comprising the package, whence any interracial variations in this relationship may be considered prima-facie evidence of discrimination. Despite the widespread use of this methodology insufficient care has been taken in specifying these "hedonic" equations to insure that any observed interracial price differentials are caused by discriminatory processes. For expository clarity the literature may be grouped into four areas according to the implicit concept of "discrimination" being employed.

Definition I. The initial concept of discrimination is that nonwhites pay more than whites for identical units, not because the individual housing components are priced differently per se, but because white landlords will only agree to rent to nonwhites when they receive a markup of the composite package price charged to identical white tenants. The empirical implication of this concept is that all characteristics of the housing bundle must be standardized in the hedonic estimating equation, whence the use of a "racial" dummy variable (e.g., "a tract having over 35 percent nonwhites" as in Daniels [4] or "race of household head" as in King and Mieszkowski [11]), or some "continuous" measure of neighborhood racial composition (e.g., "percentage white in tract" as in Ridker and Henning [16] and Kain and Quigley [10] or "percentage nonwhite in surrounding ring of blocks" as in Bailey [2]) supposedly measures the discriminatory effects.

The initial problem associated with the use of only one such racial variable in the regression is that it not only identifies different groups demanding housing but also proxies a component supplied by the housing package which may have intrinsic value to either (or both) group. Two such possible "racial" components of the package must be considered. The first is a "taste for segregation" (integration), wherein people may be willing to pay a premium to live in units near households of their own race (opposite race). This attribute of housing is usually conceived of in "continuous" terms--its strength varies continuously with the racial composition of proximate neighborhoods. The second potential component is "ghetto environment," wherein ghettoites may share a common positive sense of "community" or "belongingness," or a negative sense of "isolation" or "alienation." This characteristic can best be viewed in "discontinuous" terms--units located inside the distinctly-demarcated ghetto share it to the same degree while those outside do not possess it at all.

With these two potential factors in mind the sense of the above criticism should be transparent. Variables attempting to identify the race of the household may actually be proxying an additional housing attribute contributing to the unit's value. For example, a positive coefficient for a "nonwhite household head" dummy may identify either a discriminatory markup or the value nonwhites place in "belonging to the ghetto," an attribute which, due to existing residential segregation, is usually associated with the "typical" nonwhite head but not the "typical" white head. Analogously, a negative coefficient for a "percentage white in tract" variable could mean either whites receive discounts or nonwhites have a relatively stronger aversion to living in predominantly white tracts than do whites in nonwhite tracts. Of course, the confusion can work in the opposite direction so as to obscure discrimination which may actually exist. The absence of ghetto/nonghetto price differentials cannot rule out the possibility of discrimination if, for instance, it is working to offset the discounts generated by socio-psychological feelings of "isolation" characterizing ghetto location. Only after making the implausible assumption that neither neighborhood racial composition nor the environment of the ghetto are arguments in households' utility functions do these ambiguities disappear.

King and Mieszkowski [11] tried two methods in attempt to avoid this

problem. They first used both a "race of household head" dummy and a "percentage nonwhite on block" variable in an hedonic equation. While the latter variable tests for the existence of the "tastes for segregation" housing component, the "ghetto environment" component is ignored. If the ghetto environment factor is, in fact, operative and highly correlated with the two explanatory variables used by King and Mieszkowski, its exclusion from the equation results in biased coefficients of the included variables. The significance of this bias can only be dismissed by assuming ghettoites place no value on their environment (or that the valuations are of a particular kind which strengthen a given result). Their second specification involved multiple dummy variables simultaneously delineating both location in the housing market in terms of ranges of neighborhood racial composition and the race of the renter. Their claim that a 7 percent markup exists in racially-mixed "boundary" areas is mitigated, however, by the fact that their specification of this region still allows variation of 3-60 percent nonwhite occupancy in adjacent blocks. As Professor King admitted in personal correspondence the distribution of races across this "boundary" region is such that the "average" white renter lives in a neighborhood having a significantly lower proportion of nonwhites than the "average" nonwhite renter, thus this multiple dummy technique fails to provide the requisite standardization of the "proximity to other race" component of the housing package. Only by assuming nonwhites have no "tastes for segregation" can this problem be skirted, yet this would be contrary to King and Mieszkowski's own conclusions, as well as those of other researchers [5, 13].

The second difficulty encountered by methodologies based on Definition I is that the existence of discrimination may be erroneously claimed because interracial differences in preferences for the normal, nonracial components of the housing package are not controlled. This criticism stems from a consideration of the "bid-rent" theory of the urban land market, first developed by Alonso [1] and later modified for application to markets involving a spectrum of fixed lot size/housing structure parcels by Harris, et al [6] and Wheaton [19]. Briefly, the theory posits that households form "bid-rent" functions showing the maximum amount they would be willing to pay for all parcels while remaining at some arbitrary level of utility. By successive rounds of competitive bidding and allocations of parcels to the highest bidder an equilibrium rent gradient is established which is the piece-wise-continuous envelope of the bid-rent functions possessed by various household groups. The critical implication is that since bid-rent functions depend on the preferences (and incomes) of the group in question the observed pattern of rent variations in a city similarily depend on such factors.

The point can be easily proven with the aid of Figure 1. For simplicity assume a "linear" city in Figure 1 with all parcels arrayed single file from points A to B. Let the aforementioned rent gradient be R, comprised of segments of the bid-rent functions for white (RW) and nonwhites (RN). Obviously, no discrimination exists in this case since R is competitively determined and is equalized at the boundary separating the groups, C. Further, assume all units differ in only a single component which can be unambiguously measured (call it "quality") and increases monontonically over the parcels from A to B. Now all of the above specifications using Definition I would

FIGURE 1: Hypothetical Specification Error in the Case of "Composite Package
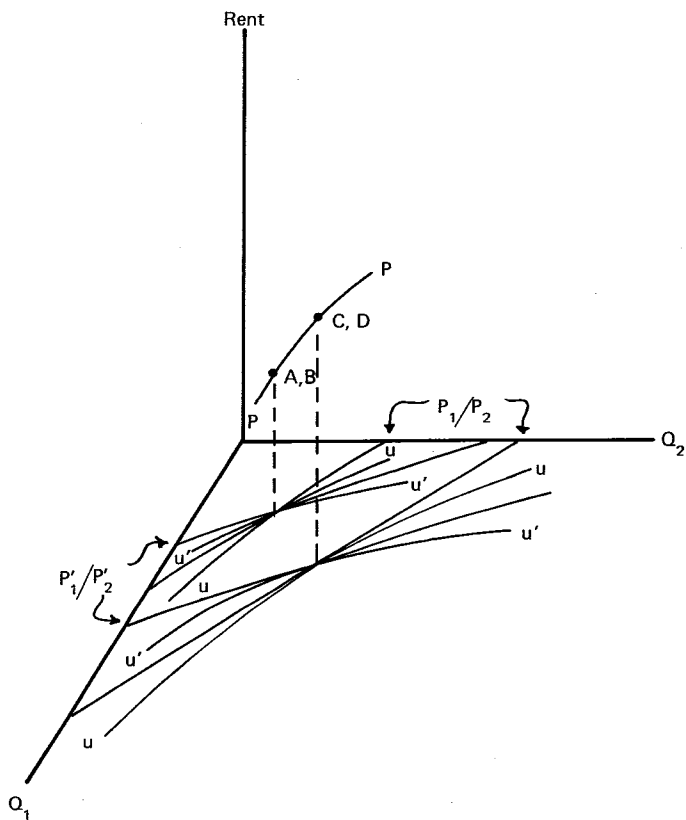Price Discrimination" Model
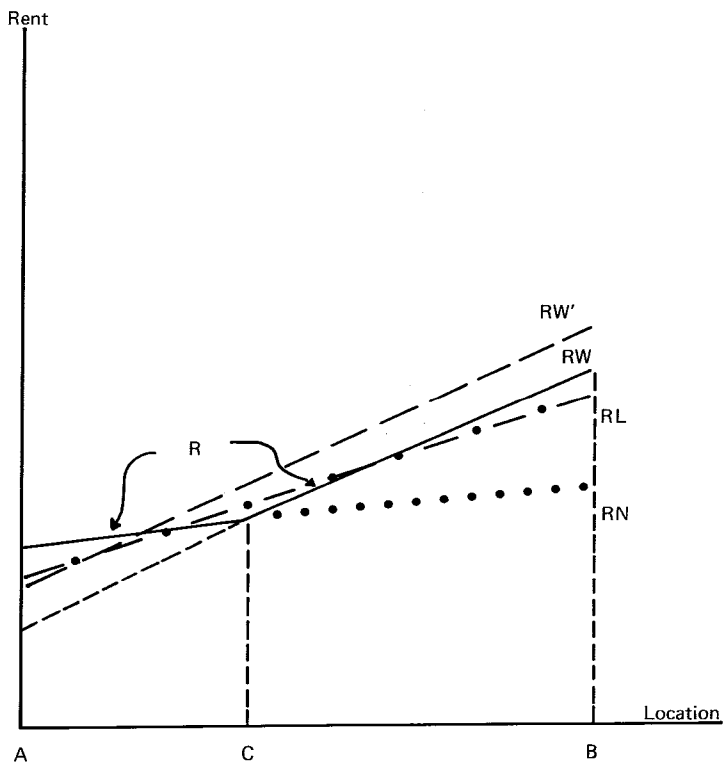
undoubtedly show that nonwhites paid more per unit of quality than whites. For instance, if a "nonwhite head" dummy was used it would significantly improve the fit of the initial regression line RL by estimating RW as the "true" relationship and (erroneously) forcing nonwhites into the same pattern in RW'. If one clings to the notion of pooled samples inherent in this discrimination definition he must assume away all interracial differences in preferences (and incomes) before placing confidence in his results.

Definition II. The second definition of discrimination is inspired by processes generated by the artificial separation of ghetto and nonghetto housing submarkets. Ghettoites face higher prices for enough of the individual components of the housing package that the "typical" ghetto bundle rents for considerably more than it would outside the ghetto. Such a concept was employed by Kain and Quigley [10] when they estimated for ghetto and nonghetto parcels separate hedonic equations containing all characteristics of the housing package, including a "percentage white in tract" variable. When the coefficients of these stratified models were applied to the mean values of the explanatory variables for units in the two submarkets the results indicated that the average ghetto unit would rent for about 2 percent less in nonghetto areas, but the average nonghetto unit would rent for 10 percent more in the ghetto.

Unfortunately, stratification by ghetto and nonghetto areas does not negate the fact that the "ghetto" not only may identify a housing submarket but also a characteristic ("environment") possessed uniquely by ghetto units. If this characteristic is highly valued by ghettoites its price will implicitly be included in the estimated constant term for the ghetto stratum. Thus, even if the other coefficients are unbiased, the aforementioned ghetto/nonghetto rent simulations will falsely indicate a markup. Once again, one cannot be sure to avoid this confusion unless he assumes ghetto location has no independent effect on rents apart from any discriminatory practices.

A more fundamental shortcoming existing in specifications based on Definition II stems from the limitations of the hedonic index approach in general. Because hedonic indexes cannot measure true marginal but only average tradeoffs and price ratios between housing bundle components they can potentially overlook true component price discrimination. Consider Figure 2, with four observed data points, A-D, in the three space of rent, R, and housing components, Q_1 and Q_2, and A, C refer to nonwhite (or ghetto) households. These observations are generated by the tangencies of relative price lines and indifference surfaces. The problem arises because this scatter could be generated by either common prices and indifference surfaces for both races, P_1/P_2 and UU, or by nonwhites with different preferences, U'U', facing a relatively higher price for Q_1, P_1'/P_2', due to discrimination. Yet, irrespective of which case actually exists, PP, the line estimated econometrically with this variant of the hedonic index technique, will show no interracial differences and thus holds the potential for overlooking true component price discrimination. Needless to say, this example had to assume interracial differences in preferences in order to generate the same consumption bundle of components across races when each faced different prices.

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FIGURE 2. **Hypothetical Specification Error in the Case of "Individual Component Price Discrimination" Model**

The contrary assumption, while obviating this difficulty, would seem much
less desirable.

Definition III. Lapham [12] has defined discrimination as nonwhites
facing higher prices for the various components of the housing package common
to both races. Composite package rents may differ, of course, due to the
inclusion of components unique to each race. Empirically, this technique
involves estimating a separate hedonic equation for ghetto and nonghetto
properties based on common housing package components, then testing for
similarity of coefficients. Since this specification intentionally excludes
independent variables presumed to affect the package price the specter of
coefficient bias again arises. While Professor Lapham was refreshingly
forthright in her recognition of this shortcoming it, nevertheless, does
not reduce its significance, precisely because the major variables inten-
tionally excluded, neighborhood racial composition and ghetto environment,
are highly correlated (but, undoubtedly, to a different degree in each
subsample) with some of the included variables. Once again, the reliability
of the approach can only be assured by the assumption of indifference to
neighborhood racial composition or ghetto location. What is more, the
problem described in Figure 2 is also applicable here, thus demanding an
additional unrealistic assumption of interracial equality of preferences
for nonracial housing components.

Definition IV. In a recent article Straszheim [17] interprets dis-
crimination as interracial differences in the consumption of housing attributes
due to higher nonwhite housing price-income ratios and supply rationing in
the ghetto submarket. Briefly, Straszheim estimates demand functions for
various physical components of the housing package for nonwhites based on
their income, prices of different structure types, and racial submarket
dummy variables. He then uses these functions to compute the contribution
discrimination makes to the interracial difference in the consumption of the
attribute in question by lowering nonwhite price-income ratios to the white
level and eliminating the ghetto submarket dummy. Unfortunately, although
Straszheim laudably stratifies his demand equations by life-cycle stage to
control for this influence on preferences his methodology simply does not
go far enough along these lines. Initially, an obvious determinant of housing
preferences which is ignored in the demand specification is socio-economic
class. Since within a given life cycle category nonwhites can on average
be expected to be of lower income and status than whites--and thereby have
different tastes--interracial comparability of price-income ratios becomes
problematic. Secondly, his estimation of prices of "bench mark" units which
are so crucial for the demand equations utilizes an hedonic index which
totally overlooks the possibility of price variations due to different
preferences for neighborhood racial composition and/or the ghetto environment.
If, for instance, a certain nonwhite life cycle group places great value
in this latter factor their price-income ratios will be biased upward in
the ghetto since unique amenities are present here and not in the white sub-
market. Furthermore, should such be the case the inclusion of a "ghetto
submarket" dummy in the group's demand equation in an attempt to proxy supply
rationing would only succeed in identifying the relationship suggested by
normal negative marginal rates of substitution: the consumption of one

good is negatively related to that of another once income is given. The
upshot is that Straszheim's methodology, though recognizing their importance,
fails to control for several possible interracial differences in preferences
for racial and nonracial housing components -- differences which, unless
assumed away, may seriously bias the extent of hypothesized discriminatory
policies.

Concluding Remarks

While the foregoing analysis has primarily cast an unfavorable light
upon the veracity of the results derived from the current econometric studies
of housing market discrimination, it also makes a positive contribution toward
establishing goals for future research. It should be clear that reliable
hedonic indices must embody variables proxying neighborhood racial com-
position and ghetto environment and be estimated over subsamples of house-
holds with homogeneous race, incomes, and preferences. This implication,
of course, imposes greater demands on data collection than are now normally
encountered, in order to preserve statistically adequate sample sizes.
The expected gains in reliability of results from such a specification seem,
nevertheless, significant enough to merit these additional efforts. And
while it may be unreasonable to claim that the existing studies tell us
nothing about discrimination in housing due to their specification errors,
it is equally unreasonable to dismiss the potentially-biasing effects of
these flaws by positing arbitrary and unreasonable assumptions about
preferences for neighborhood racial composition, the ghetto environment,
and the nonracial components of the housing package. The role of dis-
crimination in shaping the spatial form of our urban regions is too crucial
an issue to settle for suboptimal empirical specifications.

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